



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,523	02/06/2006	Masaki Kanazawa	06-155	1327
34704 7590 01/14/2009 BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510				
EXAMINER				
FOURSON III, GEORGE R				
ART UNIT		PAPER NUMBER		
2823				
MAIL DATE		DELIVERY MODE		
01/14/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/567,523

**Applicant(s)**

KANAZAWA, MASAKI

**Examiner**

George Fourson

**Art Unit**

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-13 and 17-26 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 11-13 and 17-26 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

Applicant's election without traverse of the invention of claims 11-14 and 17-26 in the reply filed on 9/29/08 is acknowledged.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 23-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not understood what is recited by use of "side surfaces in parallel to the arranged direction" because one a plane and one is a line.

Claims 11-13 and 17-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hesselborn 6014313 and applicant's admitted prior art.

Hesselborn discloses in figure 1, for example, first and second semiconductor stacks on a support plate 19 (and optionally 7) wherein each chip (3,3') and thermal element 15 can be chosen according to desired circuit configurations and wherein chips 3 and 3' develop different amounts of heat, or have different power requirements (col.10, lines 60-67). The chips can electrically communicate (are electrically connected) between planes as well as between stacks through radiating layers 1 (col.4,

lines 1-3). Plates 1 are optionally formed of a material having high thermal conductivity (col.11, lines 1-5). An IC is formed between the stacks (fig.1).

Hesselbom does not disclose specific circuit configurations for the stacks and IC. Applicant admits formation of bridge circuits employing 4 semiconductor chips to have been known prior to applicant's invention (instant pages 1-2) and exemplifies an IC circuit between the stacks. It would have been obvious to one of ordinary skill in the art to combine the known teachings with those of Hesselbom to enable formation of the bridge circuit of the prior art according to the teachings of Hesselbom that chips forming a circuit can be employed as discussed above and further to obtain the cooling benefits disclosed by Hesselbom when using IC's producing larger amounts of heat.

With respect to claim 20, the spacing between the stacks appears to be as recited. Alternatively, one of ordinary skill in the art would have been led to the recited spacing to achieve desired overall dimensions for the package, for example.

With respect to claims 23-26, the claims are not understood as discussed above in the rejection under 35 USC §112. As best interpreted, Hesselbom discloses contacts at the margins of the chips as recited (col.5, lines 57+).

Applicant argues that none of the references relied on teach the control circuit in combination with an H-bridge circuit. However, the references are used in combination in a rejection under 35 USC § 103 and are not alleged to individually contain that teaching.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Fourson whose telephone number is (571) 272-1860. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith, can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/George Fourson/  
Primary Examiner, Art Unit 2823

GFourson  
January 14, 2009